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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,328	08/17/2005	Teruo Komori	263370US90PCT	8645
22850 7590 08/12/2009 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER DUONG, THANH P				
ART UNIT 1797		PAPER NUMBER		
NOTIFICATION DATE 08/12/2009		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/516,328

Applicant(s)

KOMORI ET AL.

Examiner

Tom P. Duong

Art Unit

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 10, 2009 has been entered.

Specification

The amendment filed 11/24/08 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

The new or additional drawings of Figs. 1 and 2 submitted on 11/24/08 show the relationship between Average pore diameter (μm) and Pressure loss (kPa). There is no disclosure of such relationship as originally filed.

Applicant is required to remove and/or cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pitcher, Jr. (4,417,908) in view of EP 1184066 (hereinafter EP '066).

Regarding claims 1, 2, 3 and 13, Pitcher, Jr. discloses a columnar honeycomb structural body (Fig. 17) comprising: a porous ceramic block (Col. 8, lines 39-60) having a large number plurality of through holes (228) extending in parallel with one another in a length direction of the porous ceramic block, the porous ceramic block having a wall portion interposed between the through holes, wherein the through holes have one of ends sealed (Col. 9, lines 5-68) such that an opening area of one end face of the through holes is larger than an opening area of the other end face of the through holes (228, 229), the plurality of through holes includes a plurality of large through holes and a plurality of small through holes, the large through holes have cross-section areas which are larger than cross-section areas of the small through holes, the large through holes and the small through holes are positioned such that a distance between centers of gravity of the cross-section areas of adjacent ones of the large through holes is set to be equal to a distance between centers of gravity of the cross-section areas of adjacent ones of the small through holes (Fig. 17), the wall portion has a plurality of micro pores having an average pore diameter in a range from 5 to 30 μm (Col. 4, lines 29-37).

With respect to the opening area of one end face of the through holes and the opening area of the other end face of the through holes have a ratio in a range between 1.01 to 6. Jr. Pitcher discloses such configuration as shown on Figure 16. Note, Jr. Pitcher further discloses the back pressure of the filter as follows:

Those familiar with honeycomb filter art will appreciate that the back pressure of a filter of honeycomb structure is determined by several contributing factors including thin wall characteristics (width, open porosity, mean pore size, etc.), inlet and outlet cell characteristics (cell density and sizes, inlet/outlet cell ratios, relative sizes and arrangement, etc.) and particulate characteristics (rate of deposit, effective porosity, etc.)

Thus, the above contributing factors including the inlet/outlet relative sizes can be optimized, at most thru routine optimization, to achieve a filter with minimum back pressure.

Pitcher, Jr. discloses the pore size can be varied based on user's operating requirements such as filter strength, durability and efficiency; contaminant size and concentration; fluid flow rate, density, viscosity, and etc. (Col. 3, lines 55-64) but does not expressly disclose the micro pores include large micro pores having a pore diameter two or more times larger than the average pore diameter, and the large micro pores have a capacity of which a rate is set to 30% or less of a capacity of the micro pores in entirety.

However, EP '066 teaches that it is conventional to provide micro pores having a pore diameter two or more times larger (pores diameter of 10 μm or more is 20% less than) than the average pore diameter (3-7 μm). Such configuration provides a honeycomb filters with superior in trapping efficiency for fine solid particulates with minimum pressure loss.

Thus, it would have been obvious in view of EP '066 to one having ordinary skill in the art to modify the device of Pitcher, Jr. with the micro pore ratio as taught by EP '066 in order to gain the above benefits, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable

ranges involves only routine skill in the art (*In re Boesch*, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980) and (*In re Allen* 105 USPQ 233).

Regarding claims 4 and 9, Pitcher, Jr. discloses the wall portion has a porosity in a range from 30 to 70% (Col. 3, lines 55-58).

Regarding claims 5, 10 and 14, Pitcher, Jr. discloses the plurality through holes on a cross-section perpendicular to the length direction has a density in a range from 15.5 to 62.0 pcs/cm² (Col. 11, lines 26-32).

Regarding claims 6, 11, 15, and 18, Pitcher, Jr. discloses is silent with respect to the use of a silicon carbide.

EP '066 teaches the use of a silicon carbide as the material construction for a honeycomb structure. Such material provides a honeycomb structure with superior in heat resistance (section 0015). Thus, it would have been obvious in view of EP '066 to one having ordinary skill in the art to select an appropriate material, such as silicone carbide in the device of Pitcher, Jr. , since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice, absence showing any unexpected results. *In re Leshin*, 125 USPQ 416.

Regarding claims 7, 12, 16, and 19, Pitcher, Jr. discloses the wall portion has a thickness in a range from 0.1 to 0.5 mm (Col. 11, lines 32-37).

Regarding claims 8, 17, and 20, Pitcher, Jr. discloses the honeycomb structure is used to purify the exhaust gas from a vehicle (Col. 10, lines 16-20).

Response to Arguments

Applicant's arguments filed July 10, 2009 have been fully considered but they are not persuasive.

(1) The new matter rejection is maintained since the data on Tables on page 39, 43, 47, and 51 fail to illustrate the Average pore diameter (μm) and Pressure loss (kPa), as originally filed.

(2) With respect to the opening area of one end face of the through holes and the opening area of the other end face of the through holes have a ratio in a range between 1.01 to 6. Jr. Pitcher discloses such configuration as shown on Figure 16.

Note, Jr. Pitcher further discloses the back pressure of the filter as follows:

Those familiar with honeycomb filter art will appreciate that the back pressure of a filter of honeycomb structure is determined by several contributing factors including thin wall characteristics (width, open porosity, mean pore size, etc.), inlet and outlet cell characteristics (cell density and sizes, inlet/outlet cell ratios, relative sizes and arrangement, etc.) and particulate characteristics (rate of deposit, effective porosity, etc.)

Thus, the above contributing factors including the inlet/outlet relative sizes can be optimized, at most thru routine optimization, to achieve a filter with minimum back pressure.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tom P. Duong whose telephone number is (571)272-2794. The examiner can normally be reached on 8:00AM - 4:30PM (IFP).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on (571) 272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tom P. Duong/
Primary Examiner, Art Unit 1797